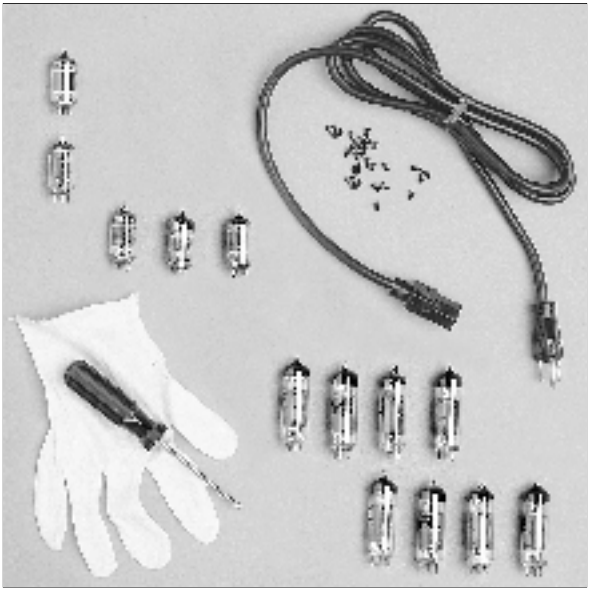
ANTHEM INTEGRATED 1 OPERATING MANUAL



We at Sonic Frontiers hope you will derive many years of listening pleasure with your new Anthem Integrated 1. This Operating Manual contains important information regarding the operation and care of the Integrated 1. Be sure to read this manual carefully and follow these instructions in order to keep your unit performing and sounding its best. Please contact Sonic Frontiers if you have any questions, a Customer Service Representative will be pleased to assist you.

WHAT'S IN THE BOX?

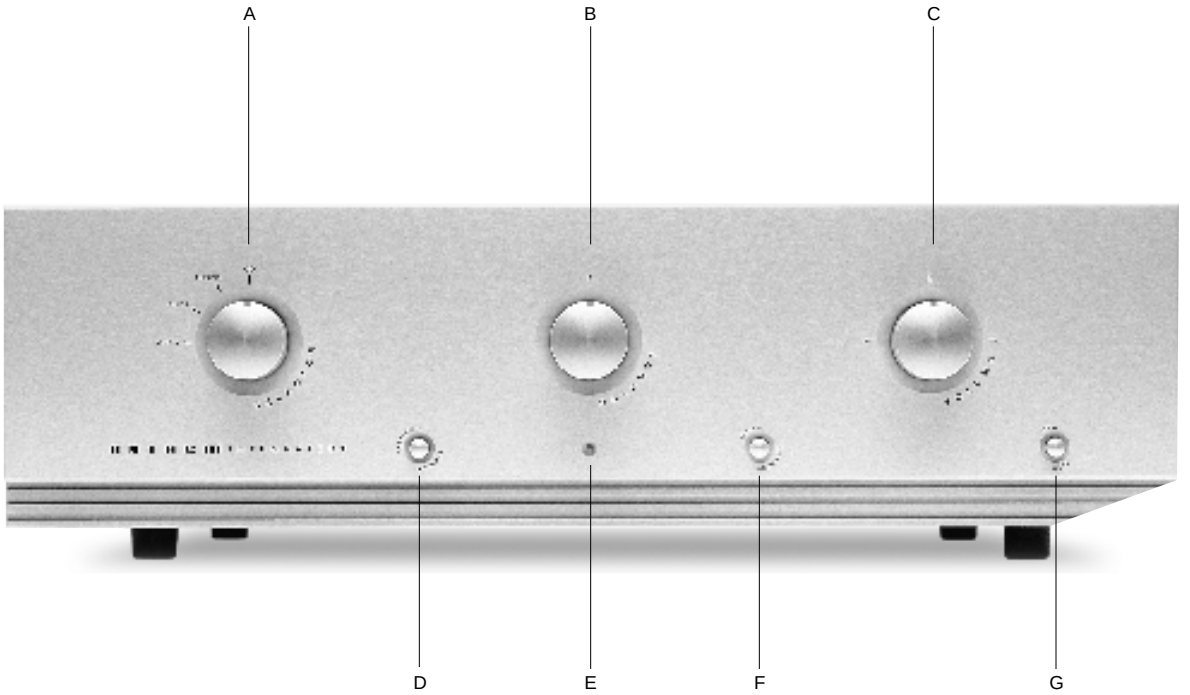
In addition to the Integrated 1, it's cover, and the operating manual you are presently reading (with associated inserts and warranty card), there are a few more items to take inventory of before steps are taken to make the Anthem Integrated 1 operational.

These items are:

- 4 12AU7 tubes (2 matched pairs)*
- 1 12AT7 tube
- 8 EL84 tubes*
- a glove for handling the tubes
- a detachable AC power cord
- a handful of phillips screws
- a phillips screwdriver

After completing an inventory of these items, proceed to the next steps.

*These tubes are carefully measured and matched in pairs and octets. Take extra care to keep them from being mixed and mismatched which would degrade performance.


A
B
C
D
E
F
G

CONTROL FUNCTIONS

A SELECTOR SWITCH
This knob is rotated to select a Line Level Input (L) or the optional Phono Input (O). The Selector Switch is bypassed when the Tape/EPL (External Processor Loop) mode is selected by depressing the Tape/EPL-Source button (D).

B BALANCE CONTROL
This knob controls the relative balance of the left and right channels to compensate for any discrepancies caused by speaker placement, source imbalance, etc. Full rotation to the left or right of the center detent will have a ±6dB trim on levels between left and right channels.

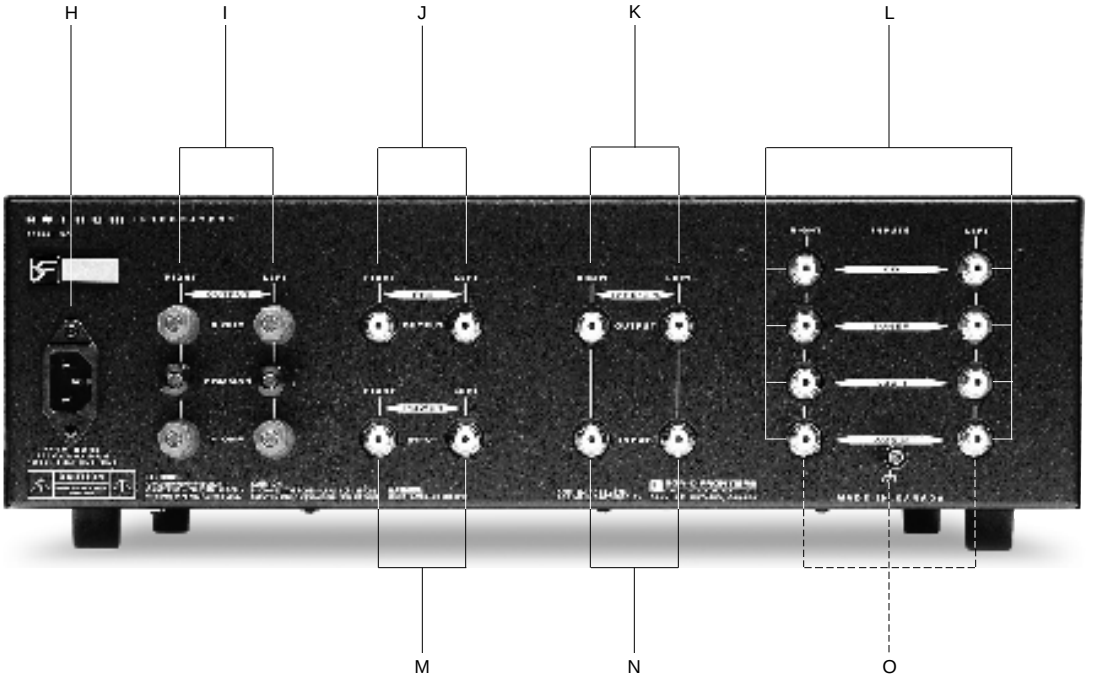
C VOLUME CONTROL
This knob allows variable control over the Integrated 1 output level. Turn it clockwise and the music gets louder!

D TAPE/EPL(EXTERNAL PROCESSOR LOOP)-SOURCE BUTTON
When this button is in the SOURCE position (button is not depressed) the signal is routed through the Selector Switch (A) to the Tape/EPL Output (K) connected with a tape deck or external processor such as a surround sound decoder. Listening and taping is done in this mode. When the button is depressed, the source signal is taken from a tape or processor source through the Tape/EPL Inputs (N) bypassing the selector switch.

E LED
When the LED is lighted the Integrated 1 is “ON”, receiving power from the power supply.

F MUTE-OPERATE BUTTON
When in the OPERATE position (not depressed), this button will allow normal function. When in the MUTE position (button depressed), the music signal is cut off from reaching the Outputs (I,J,).

G ON-OFF BUTTON
When in the ON position (button depressed), high voltage power is received by the Integrated 1 circuitry from the power source. Due to the warm up characteristics of tubes, it will take 30 seconds for the tubes to pass full signal. It is suggested that the Integrated 1 remain muted or the Volume turned down for this first minute. When in the OFF position (not depressed), the Integrated 1 is not receiving power and is not operational.


H
I
J
K
L
M
N
O

CONNECTION FUNCTIONS

NOTE: The Integrated 1 is shipped in the “integrated amplifier” configuration. For use as a separate “preamplifier” and/or “power amplifier”, refer to Figure 1 and points J and M for instructions.

H DETACHABLE AC POWER CORD SOCKET

Plug the Detachable Power Cord into this socket (see Figure 2). The Integrated 1 is factory set for the correct operating voltage for the area in which it is sold (see shipping box for voltage setting). If a different operating voltage is required, please contact an authorized Sonic Frontiers or Anthem dealer, distributor or the factory directly.

I SPEAKER CONNECTION POSTS

These 5 way binding posts accept a connection from one pair of speakers. The negative connections are to be made to the black connectors; left speaker to the terminals marked left and right to the terminal marked right. The positive connections are determined by the speakers. If the speakers impedance tends towards an 8 ohm load, use the left and right positive (red) posts labeled as 8 ohm. If the speakers are better represented by a 4 ohm load impedance, use the positive connectors labeled 4 ohm. Consult your speaker specification sheet, manual or manufacturer directly if there is any clarification needed regarding the impedance of your speakers. NOTE: ONLY ONE PAIR OF POSITIVECONNECTORS MAY BE USED AT A TIME. UNDERNO CIRCUMSTANCES ARE TWO PAIR OF SPEAKERSTO BE CONNECTED TO BOTH 4 OHM AND 8 OHM POSTS.

Refer to Figure 2 for further instruction.

J PREAMPLIFIER OUTPUT

This output connects to the single-ended inputs of other units such as power amplifiers or a crossover unit; connect left channel to left channel and right channel to right channel. The set allows the Integrated to be used solely as a preamp. For the Preamplifier Outputs to function, an internal jumper connecting the RCA Preamplifier Outputs and Power Amplifier Inputs must be cut or de-soldered. See Figure 1.

K TAPE/EPL (EXTERNAL PROCESSOR LOOP) OUTPUT

This output connects to the single-ended inputs of a tape deck or external processor; connect left channel to left channel and right channel to right channel. This output always follows the input selection of the Selector Switch (A).

L LINE LEVEL INPUTS FOR CD, TUNER AND AUXILIARY SOURCES

A line level single-ended source connection may be made to these 4 sets of RCA connectors; connect left channel to left channel and right channel to right channel.

M POWER AMPLIFIER INPUT

This input accepts a single-ended RCA input connection from an external preamp or crossover; connect left channel to left channel and right channel to right channel. The signal input at these connections will bypass all control functions and preamp functions of the Integrated 1 and will operate only as a power amplifier. For the Power Inputs to function, an internal jumper connecting the RCA Preamplifier Outputs and Power Amplifier Inputs must be cut or de-soldered. See Figure 1.

N TAPE/EPL INPUT

This input accepts a single-ended RCA input connection from a tape deck or external processor; connect left channel to left channel and right channel to right channel. These inputs are activated when the Tape/EPL-Source button (D) is depressed.

O OPTIONAL PHONO INPUT AND GROUND CONNECTION

This input is designed to replace the AUX 2 line level input when the optional phono input module is installed. This extra amplification stage provides additional gain when dealing with sensitive signals from moving magnet phono cartridges. Connections are made from a turntable; left channel to left channel and right channel to right channel. The turntable's ground wire should connect to the ground post at the center of the RCA inputs to prevent any "hum" from interfering with the signal. See the separate instruction sheet that comes with this optional stage for more information. If your Integrated 1 was not purchased with a phono stage and you wish to order one, contact your dealer or Sonic Frontiers directly.

DO NOT CONNECT A LINE LEVEL SOURCE TO THE PHONO INPUT IF THE OPTIONAL PHONO INPUT IS INSTALLED. DOING SO MAY OVERLOAD AND DESTROY THE SENSITIVE CIRCUITRY. THIS DAMAGE WOULD NOT BE COVERED UNDER YOUR WARRANTY.

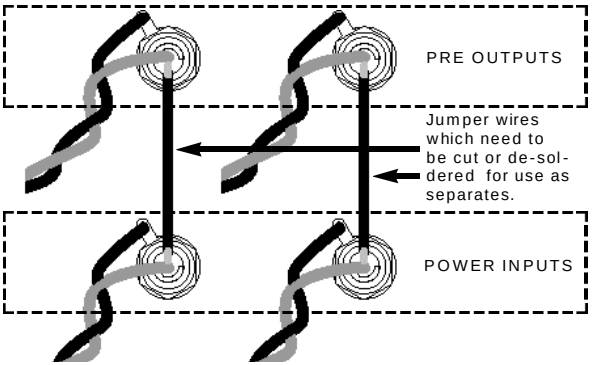


FIGURE 1

This is an internal view of the jumper wires connecting the RCA Preamplifier Outputs to the Power Amplifier Inputs. The jumper wires must be cut or desoldered to function as separate units. To reconfigure as an Integrated Amplifier, the Preamplifier Out connectors may be connected to the Power Amplifier Inputs externally via a pair of short interconnects or internally by resoldering the jumpers.

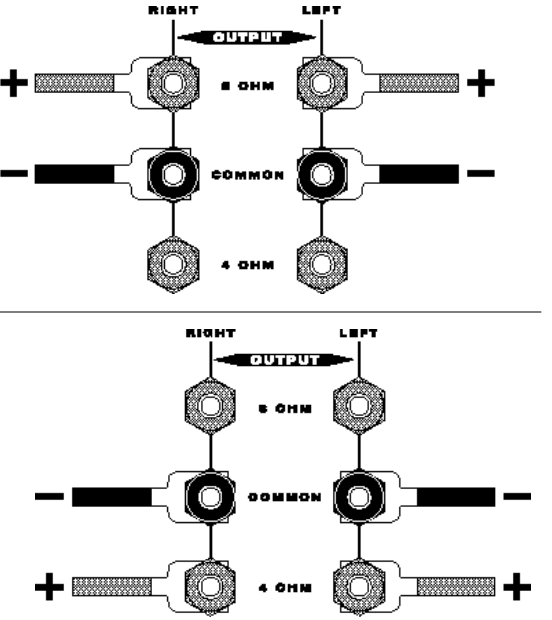


FIGURE 2

Top figure shows a connection to a loudspeaker with an 8 ohm impedance, lower figure show a connection to a speaker with 4 ohm impedance.

WARNING-DISCONNECT THE AC DETACHABLE POWERCORD FROM THEINTEGRATED 1 AND WAIT 5 MINUTES BEFORE REMOVING COVER, TUBES OR FUSE.

SETTING UP

The Integrated 1 comes with thirteen (13) tubes, as follows:

12AU7 (LV1 & V1) PREAMP TUBES

These tubes perform the line level preamplifying function of the Integrated 1. The preamplifier stage of the Integrated 1 provides 12 db of gain. The 12AU7 tubes may be replaced with matched pairs of ECC82, E82CC, ECC802S, 5814A, 6189, CV4003 or M8136.

12AT7 (V3) FIRST STAGE AMPLIFICATION TUBE

The first stage of amplification in the amplifier section of the Integrated 1 is achieved through the use of this dual triode, amplifying both channels, one per triode section. The 12AT7 may be replaced with the ECC81, E81CC, ECC801S, 6201, CV4024or M8162 tube.

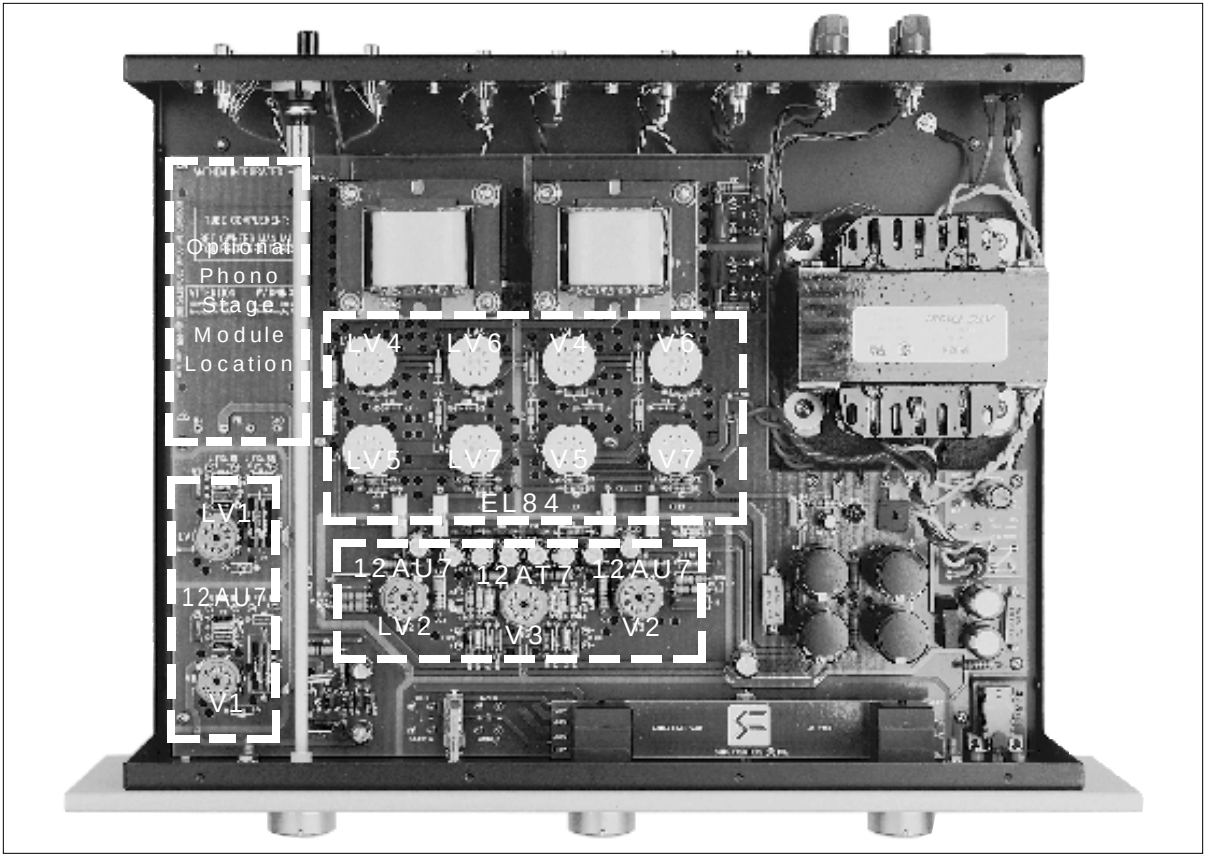
12AU7 (LV2 & V2) DRIVER TUBES

These tubes split the phase of the signal and drive the push/pull pairs of power tubes. The 12AU7 tubes may be replaced with matched pairs of ECC82, E82CC, ECC802S, 5814A, 6189, CV4003 or M8136.

EL84 (LV4,5,6,7 & V4,5,6,7) POWER TUBES

These tubes provide the last stage of amplification, set up in push/pull pairs (4 tubes per channel, two per phase). The EL84 tubes use a non-adjustable fixed biasing scheme - meaning these power tubes do not require manual bias adjustment by the user. If one EL84 should fail, the entire channel (V4 through V7 or LV4 through LV7) should be replaced with a matched quad set for best performance. The EL84 may be replaced with the EL84M, 6BQ5 or 7189 power pentode tube.

The entire power amplifier section (First Stage to Power Stage) provides an additional 28 db of gain.

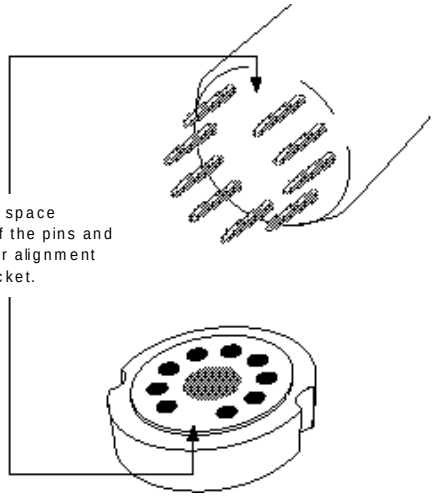


INSERTION OF THE TUBES

1. Using the screwdriver supplied, remove the cover of the Integrated 1. For your convenience, only two of the screws are installed at the factory.

2. When handling the tubes, it is recommended that the cotton gloves provided be worn to prevent skin oils from depositing on the glass surface and possibly causing the tube to become prematurely “gassy”, thereby shortening the tube’s useful operating life.

3. Noting the location of the tube sockets in the top view photo, inspect the tubes for corresponding labels and markings. Once locations are mapped, take a tube and inspect the pins, noting the larger space between two of the pins (see Figure 3). This space will match with the socket. Insert each tube into the appropriate tube socket, making sure all pins and pin holes are aligned. Do not force the tubes into the sockets. “Rock” the tubes gently while pushing slowly until each tube is firmly seated.



Note the larger space between two of the pins and holes for proper alignment of tube and socket.

FIGURE 3

OPERATION

Before plugging in the Integrated 1, check to see that the unit is configured for the correct AC line voltage for country of use. The operating AC line voltage is indicated on the side of the shipping box. If the Integrated 1 is set incorrectly for the country in which it is to be operated, contact the dealer or distributor in your area. If the unit is configured properly, continue with operation.

Connect the Detachable Power Cord to the Integrated 1 AC Power Cord Socket (H) (see Figure 4). Plug your Integrated 1 into the AC power source.

All remaining connections are made with co-axial cable and RCA connectors to or from other single-ended units. Connect source units to the Integrated 1 Inputs (L); left channel to left channel and right channel to right channel. If a tape or other line level recording or processing device is being implemented, connect the left and right audio output of the unit to the corresponding left and right Tape/EPL Input (N) of the Integrated 1. Also connect the left and right Tape/EPL Outputs (K) on the Integrated 1 to the corresponding left and right audio inputs of the external device.

Connect loudspeakers to the appropriate post as described in the connection section of this manual.

The Integrated 1 is now ready for operation. Power the Integrated 1 by placing the On-Off button (G) in the ON position. The tubes will take approximately 30 seconds to warm up and then the Integrated 1 is functional.

Select a ready source through the Selector Switch (A).

Balance is adjusted through use of the Balance Control (B); turning it left and right will adjust the left and right levels respectively in a -6dB adjustment range. The center detent is an indicator for equal, or balanced, left and right levels.

Volume is adjusted through use of the Volume Control (C). Turning this control clockwise increases the volume level of both channels. Be sure the level is sufficiently low when turning the unit ON or returning to the OPERATE mode after MUTING, to prevent damage to speakers, amplifiers

or the Integrated 1.

To record from a source, place the Tape/EPL-Source button (D) in the SOURCE position, select the source material you wish to record via the Selector Switch (A), and commence recording. To play back a tape recording, place the Tape EPL/ Source button in the TAPE position.

Muting the Integrated 1 is achieved by placing the Mute/Operate button (G) in the MUTE position (button depressed); the output signal is then cut off. To resume listening, place the button in the OPERATE position (not depressed).

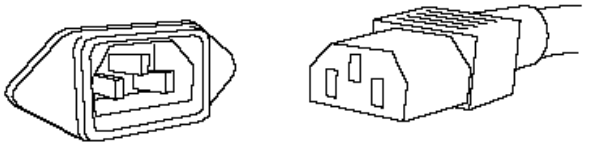


FIGURE 4
Alignment of the AC power connector and detachable cord.

TROUBLESHOOTING

If at any time the Integrated 1 fails to work properly, consult this checklist:

1. Check that the AC Detachable Power Cord is plugged into the Integrated 1 Detachable Power Cord Socket (H) and is connected to a live source of AC power. For instance, if using a power bar, check that the bar is turned on.

2. Ensure that all Input and Output connections are secure for a proper electrical contact.

3. DISCONNECT THE AC POWER CORD, wait 5 minutes, remove the chassis covers from the Integrated 1 and Power Supply and check that:
• A slo-blo fuse, with a rating of 2.5 Amp/250 V (1.25 Amp/250 V for European and Asian versions), is installed in the cylindrical tube next to the large power transformer.
• The AC power fuse is intact and has not blown. If the fuse has blown, the thin metal conductor will have melted and the glass may appear “smoked”. If the fuse has blown, replace with a fuse of the same rating (2.5 Amp/250V slo-blo for 100 to 120 volt countries and 1.25 Amp/250V slo-blo for 200 to 240 volt countries). (See Figure 5)
NOTE: Under no circumstances should you replace the AC power fuse with one of a higher current rating! Doing so may cause further damage to the Integrated 1 and will also void the warranty. In addition, your continued protection from risk of fire or shock would be seriously compromised.
• Ensure the tubes are plugged firmly into their sockets as described in “INSERTION OF THE TUBES”.

5. Be sure the rest of the system is functioning properly (i.e. source unit, power amplifiers, cables and connections, etc.).

6. With tubes, fuses, covers and power cords in place, check that the LED (E) is lighted (glowing light green). If all of the above troubleshooting steps have been followed and the LED is not lighted (remains dark green), contact your dealer or distributor for assistance.

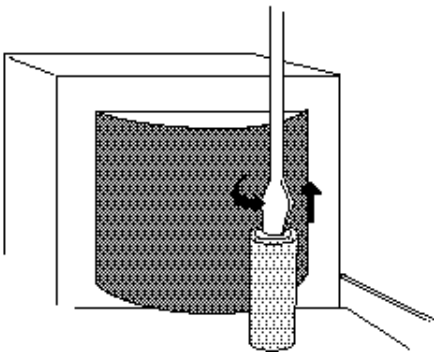


FIGURE 5
Fuse location in the Power Supply and removal.

WARNING-DISCONNECT THE AC DETACHABLE POWER CORDFROM THEINTEGRATED 1 AND WAIT 5 MINUTES BEFORE REMOVING COVER, TUBES OR FUSE.

BREAK-IN TIME

As with all audio electronic products, the ultimate sonic character of the Integrated 1 will not be realized until and unless the unit receives a minimum of approximately 70 hours of signal break-in time (i.e. the Integrated 1 is on and outputting a signal).

PLACEMENT FOR PROPER VENTILATION

Allow at least 4" (15 cm) of clear space above the Integrated 1 chassis for proper ventilation, making sure the air vent slots in the chassis cover remain unobstructed. Also, be sure that the Integrated 1 is placed on a secure, hard and level surface (not on carpet).

SAFETY INSTRUCTIONS

1. Ventilation - Although your Integrated 1 generates only nominal heat in use, be sure that the ventilation slots in the top cover have at least 4" of unobstructed air space above them.
2. Water and Moisture - This product should not be used near water. To prevent fire or shock hazard, do not expose this product to rain or moisture.
3. Heat - This product should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances which produce heat.
4. Power Sources - This product should be connected to an AC power source of the proper rated voltage. The original shipping container will stipulate the AC voltage this unit can operate with correctly.
5. Cleaning - A regular dusting with a soft, non-abrasive cloth will generally keep the finish of the faceplate and chassis looking like new. At no time should you allow any liquid to come in contact with the Integrated 1; it may run into the electronic circuitry and cause damage which will not be covered under your warranty.
6. Servicing - Do not open this product. No user serviceable parts inside. Refer servicing to an authorized service technician.
7. Non-Use Periods - The power cord of this product should be unplugged from the outlet when left unused for an extended period of time.
8. Do not remove the Integrated 1 covers while the unit is "on", or connected to an AC power source. Cover screws could fall through the ventilation slots and cause electrical damage to the Integrated 1.

PACKING MATERIALS

Please retain all of the packing material and shipping boxes for your Integrated 1. They are custom designed to prevent shipping damage from occurring. Sonic Frontiers, Inc. will accept no responsibility for any damage occurring to an Integrated 1 that is shipped in packing material other than the original Sonic Frontiers packing material.

DISCLAIMER OF LIABILITY

Under no circumstances does Sonic Frontiers, Inc. assume liability or responsibility for injury or damages sustained in the use or operation of this equipment or for damages to any other equipment connected to it. Sonic Frontiers, Inc. reserves the right to make design changes or improvements without the obligation to revise prior versions. All specifications are subject to change without notice.

LIMITED FIVE YEAR WARRANTY

Sonic Frontiers, Inc. warrants to the purchaser that each Integrated 1 is free of manufacturing defects for a period of five (5) years from the date of purchase. This five (5) year limited non-transferable warranty excludes all vacuum tubes, which we warrant for a period of twelve (12) months. To receive this warranty, the original purchaser must complete and mail to Sonic Frontiers, within thirty (30) days from the date of purchase, the enclosed Warranty Registration Card. Sonic Frontiers, Inc. will then validate the warranty to the original purchaser. This warranty is subject to the following conditions and limitations:

1. Warranty applies only to the original purchaser.

2. This warranty is void and inapplicable if the product has been handled other than in accordance with the instructions in this Operating Manual, abused or misused, damaged by accident, neglect or in being transported, or the defect is due to the product being tampered with, modified or repaired by anyone other than Sonic Frontiers, Inc. or an authorized Sonic Frontiers repair depot.

3. Warranty does not cover normal maintenance.

4. Sonic Frontiers, Inc. shall not be responsible in any way for consequential or indirect damages or liabilities resulting from the use and operation of the product covered herein or resulting from any breach of this warranty or any implied warranty relating to said product.

During this period, Sonic Frontiers, Inc. will repair or replace any defective components free of charge. A Return Authorization Number (RA Number) is required before any product is returned to our factory for any reason. This number must be visible on the exterior of the shipping container(s) for Sonic Frontiers to accept the return.

Units shipped to us without a Return Authorization Number or without a visible RA Number on the exterior of the shipping container(s) will be returned to the sender, freight collect.

Units to be repaired by Sonic Frontiers, Inc. must be sent shipping and insurance prepaid by the original purchaser in the original packing material. A returned product should be accompanied by a written description of the defect. Repaired units will be returned by Sonic Frontiers, Inc. shipping and insurance prepaid.

All other warranties or conditions either written or implied are void.

Note: In foreign markets (anywhere outside of Canada and the USA), the warranty is supplied by the authorized International Distributor. Exact terms and conditions may vary.

This symbol is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

TECHNICAL SPECIFICATIONS
(AC line set at 117V 60Hz)

INPUTS (6): CD, Tuner, Aux 1, Aux 2/Phono, Tape and Power

OUTPUTS (3): Tape, Preamplifier and Main Power Amplifier (0,4,8 ohm)

CONTROLS (3): Input Select, Balance, Volume

SWITCHES (3): Tape/EPL (External Processor Loop), Mute/Operate, On/Off

TUBE COMPLEMENT: 4-12AU7, 1-12AT7, 8-EL84

DIMENSIONS: Integrated 1 Chassis: 19" (48 cm) W x 5 1/4" (13.4 cm) H x 13" (33 cm) D, Knobs extend 3/4" (1.9 cm) forward of panel

WEIGHT: Integrated 1 Chassis: Net 36 lbs, (15.5 kg)

INTEGRATED AMPLIFIER SPECIFICATIONS

RATED POWER: 25 Watts continuous: 10Vrms into 4 ohms or 14.14 Vrms into 8 ohms both channels driven 30Hz to 15kHz @ <1% THD&N; (user selectable 4 and 8 ohms taps on rear panel)

FREQUENCY RESPONSE: -0.5dB 30Hz to 25kHz (@ rated power); -3.0dB 10Hz to 65kHz (@ rated power)

SIGNAL TO NOISE RATIO: ≤ -83dB (A weighted ref 25W rated power); ≤ -72dB (Unweighted ref 25W rated power)

THD&N: ≤ 0.2% 1kHz @ rated power, ≤ 1% 30Hz to 15kHz @ rated power, ≤ 3% 18Hz to 23kHz @ rated power

PHASE: Polarity Inverting

INPUT IMPEDANCE: 750k ohms (Line level inputs)

GAIN: +40dB

SENSITIVITY: 160mV input for rated power (Volume control @ maximum)

PREAMPLIFIER SPECIFICATIONS
Line Level Inputs to Pre Outputs

INPUT IMPEDANCE: 750k ohms (line level inputs)

OUTPUT IMPEDANCE: 7k ohms (minimum required load: 100k ohms)

FREQUENCY RESPONSE: -0.5dB 30Hz to 20kHz, -3.0dB 10Hz to 55kHz

SIGNAL TO NOISE RATIO: ≤ -75dB (Unweighted ref 1V @ Pre Out); ≤ -85dB (A weighted ref 1V @ Pre Out)

THD&N: ≤0.3% 10Hz to 50kHz (Ref 1V @ Pre Out)

PHASE: Polarity Inverting

GAIN: +12dB

POWER AMPLIFIER SPECIFICATIONS
Power Amplifier Inputs to Main Speaker Outputs

RATED POWER: 25 Watts continuous into 4 or 8 ohms both channels driven 30Hz to 15kHz @ <1% THD&N; (user selectable 4 and 8 Ohm taps on rear panel)

FREQUENCY RESPONSE: -0.5dB 10Hz to 40kHz (1W); -3.0dB 15Hz to 150kHz (1W); -0.5db 10Hz to 40kHz (@ rated power); -3dB 15 Hz to 100kHz (@ rated power)

SIGNAL TO NOISE RATIO: ≤ -95dB (A weighted ref 25W rated power); ≤ -87dB (Unweighted ref 25W rated power)

THD&N: ≤1% 30Hz to 15kHz @ rated power; ≤3% 18Hz to 23kHz @ rated power

PHASE: Polarity Non-inverting

INPUT IMPEDANCE: 100k ohms (Power Amplifier Inputs)

DAMPING FACTOR: ≥8 @ 8 ohms; ≥6 @ 4 ohms

GAIN: +28dB

SENSITIVITY: 660mV Input for rated power

NOTE: For technical specifications on the optional Moving Magnet Phono Module, please contact Sonic Frontiers.

All tests were performed with the Audio Precision System One.

ANTHEM

DESIGNED AND MANUFACTURED BY SONIC FRONTIERS INCORPORATED
2790 BRIGHTON ROAD, OAKVILLE, ONTARIO, CANADA L6H 5T4 TEL: (905) 829-3838 FAX: (905) 829-3033
Sonic Frontiers can be reached 9:00 am to 6:00 pm (E.S.T.) or 24 hours a day by facsimile
E-MAIL: SFI@sonicfrontiers.com WWW: http//www.sonicfrontiers.com/ANTHEM